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(54) TREHALOSE
SYNTHETASE, ITS
PRODUCTION AND
PRODUCTION OF
TREHALOSE USING THE
ENZYME

(57) Abstract:

PROBLEM TO BE SOLVED: To
obtain a new trehalose
synthetase acting on maltose to

produce trehalose used in pharmaceuticals, foods, cosmetics, etc., by culturing a microorganism belonging to the genus *Pseudomonas* and having trehalose synthetase producing capacity in a culture medium.

SOLUTION: The objective new trehalose synthetase is produced by culturing a microorganism belonging to the genus *Pseudomonas* and capable of producing a trehalose synthetase [e.g. *Pseudomonas* sp.F-1 (FERM P-14747)] in a medium and collecting the product from the cultured material. The trehalose synthetase acts on maltose to form trehalose, acts on trehalose to form maltose, has optimum pH of 6.0-10.0 at 37°C, optimum temperature of 45°C at pH7.0, pH stability of 5.0-11.0 at 37°C, heat stability of 40-50°C at pH7.0, isoelectric point of 5.0-6.0 and molecular weight of 40,000-80,000 (SDS.PAGE), is inactivated with Co^{++} , Zn^{++} , Ni^{++} , Hg^{++} , Cu^{++} and Cd^{++} and has an amino-terminal amino acid sequence expressed by the formula.